

CLAIMS

1. A damping structure having an internal cavity (2) and comprising:

- an aggregate (8) which comprises at least solid bodies (9) in contact and which completely fills said internal cavity (2); and
- a rigid plate (11) for closing off said internal cavity (2),

characterized in that it additionally comprises an elastic means (12) which exerts elastic pressure on said rigid plate (11) so as to constrain said aggregate (8).

2. The damping structure as claimed in claim 1, characterized in that said structure (1) is elongate and in that said internal cavity (2) is formed longitudinally inside said elongate structure (1).

3. The damping structure as claimed in either claim 1 or 2, characterized in that at least some of said solid bodies (9) are hollow.

4. The damping structure as claimed in any of the preceding claims, characterized in that at least some of said solid bodies (9) are compact.

5. The damping structure as claimed in any of the preceding claims, characterized in that said aggregate (8) comprises solid bodies (9A, 9B) made of different materials.

6. The damping structure as claimed in any of the preceding claims, characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different shapes.

7. The damping structure as claimed in any of the preceding claims, characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different sizes.

8. The damping structure as claimed in any of

the preceding claims,  
characterized in that it additionally comprises at least one internal partition (13) which is arranged inside said internal cavity (2).

9. The damping structure as claimed in claim 8, characterized in that said internal partition (13) has a tubular shape.

10. The damping structure as claimed in either claim 8 or 9, characterized in that said internal partition (13) is at least partially solid.

11. The damping structure as claimed in one of claims 8 to 10, characterized in that said internal partition (13) is at least partially pierced.

12. The damping structure as claimed in any of the preceding claims, characterized in that said aggregate (8) additionally comprises a viscous liquid filling the spaces between said solid bodies (9).

13. The damping structure as claimed in any of the preceding claims, characterized in that it is produced in the form of a pinion.

14. A damping structure having an internal cavity (2) and comprising:

- an aggregate (8) which comprises at least solid bodies (9) in contact and which completely fills said internal cavity (2); and
- a rigid plate (11) for closing off said internal cavity (2),

characterized in that it additionally comprises at least one internal partition (13) which is arranged inside said internal cavity (2) and which is at least partially pierced.

15. The damping structure as claimed in claim 14, characterized in that it additionally comprises an elastic means (12) which exerts elastic pressure on

said rigid plate (11) so as to constrain said aggregate (8).

16. The damping structure as claimed in either claim 14 or 15, characterized in that said structure (1) is elongate and in that said internal cavity (2) is formed longitudinally inside said elongate structure (1).

17. The damping structure as claimed in any of claims 14 to 16, characterized in that at least some of said solid bodies (9) are hollow.

18. The damping structure as claimed in any of claims 14 to 17, characterized in that at least some of said solid bodies (9) are compact.

19. The damping structure as claimed in any of claims 14 to 18, characterized in that said aggregate (8) comprises solid bodies (9A, 9B) made of different materials.

20. The damping structure as claimed in any of claims 14 to 19, characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different shapes.

21. The damping structure as claimed in any of claims 14 to 20, characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different sizes.

22. The damping structure as claimed in any of claims 14 to 21, characterized in that said internal partition (13) has a tubular shape.

23. The damping structure as claimed in any of claims 14 to 22, characterized in that said internal partition (13) is at least partially solid.

24. The damping structure as claimed in any of claims 14 to 23, characterized in that said aggregate (8) additionally comprises a viscous liquid filling the spaces between

said solid bodies (9).

25. The damping structure as claimed in any of claims 14 to 24, characterized in that it is produced in the form of a pinion.

26. A damping structure with an internal cavity (2) and comprising:

- an aggregate (8) which comprises at least solid bodies (9) in contact and which completely fills said internal cavity (2); and
- means (10) for closing off the internal cavity (2) and pressing said aggregate (8) into said internal cavity (2),

characterized in that it is rigid.

27. The damping structure as claimed in claim 26,

characterized in that said structure (1) is elongate and in that said internal cavity (2) is formed longitudinally inside said elongate structure (1).

28. The damping structure as claimed in either claim 26 or 27,

characterized in that at least some of said solid bodies (9) are hollow.

29. The damping structure as claimed in any of claims 26 to 28,

characterized in that at least some of said solid bodies (9) are compact.

30. The damping structure as claimed in any of claims 26 to 29,

characterized in that said aggregate (8) comprises solid bodies (9A, 9B) made of different materials.

31. The damping structure as claimed in any of claims 26 to 30,

characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different shapes.

32. The damping structure as claimed in any of claims 26 to 31,

characterized in that said aggregate (8) comprises solid bodies (9C, 9D, 9E, 9F) of different sizes.

33. The damping structure as claimed in any of claims 26 to 32, characterized in that it additionally comprises at least one internal partition (13) which is arranged inside said internal cavity (2).

34. The damping structure as claimed in claim 33, characterized in that said internal partition (13) has a tubular shape.

35. The damping structure as claimed in either claim 32 or 33, characterized in that said internal partition (13) is at least partially solid.

36. The damping structure as claimed in one of claims 32 to 35, characterized in that said internal partition (13) is at least partially pierced.

37. The damping structure as claimed in any of claims 26 to 36, characterized in that said aggregate (8) additionally comprises a viscous liquid filling the spaces between said solid bodies (9).

38. The damping structure as claimed in any of claims 26 to 37, characterized in that said means (10) for closing off said internal cavity (2) comprise a rigid plate (11) which is constrained by an elastic element (12).

39. The damping structure as claimed in any of claims 26 to 38, characterized in that it is produced in the form of a pinion.

40. A suspension system for a rotary wing aircraft, particularly helicopter, gearbox, said suspension system comprising a number of suspension bars (15), characterized in that at least one of said suspension bars (15) comprises a damping structure (1) with an internal cavity (2) and comprising:  
- an aggregate (8) which comprises at least solid

- a rigid plate (11) for closing off said internal cavity (2).

42. A device for damping the vibrations of a vibrating component mounted on a support, characterized in that it comprises a damping structure (1) as specified in any of claims 1 to 39, which is arranged between said vibrating component (BTP) and said support (17).

43. A device for damping the vibrations of a vibrating component comprising at least one hollow element, characterized in that said hollow element (15) is produced in the form of a damping structure (1) as specified in any of claims 1 to 39.